Case Study Answers and Explanations

Question 1: On January 7th how many CL days have occurred to determine if the BSI is a CLABSI?

a. 6 CL days
b. 4 CL days
c. 2 CL days
d. 0, the BSI is not CL associated

Explanation:

The correct answer is 'b'.

Counting CL days for making CLABSI determinations **(specifically, whether a BSI is a CLABSI by NHSN definitions)** begins with insertion (during the current admission) or the day the CL is first accessed in an inpatient location, if the CL was present on admission.[2] Once accessed, (defined as line placement or use of the line for infusion, withdrawal of blood or hemodynamic monitoring), the device becomes an ***eligible CL*** (eligible for a CLABSI event) when it has been in place for more than two consecutive calendar days (CL day 3). An eligible CL continues to be eligible for a CLABSI event until the day after its removal from the body or the day after patient discharge, whichever comes first.[3] If the only CL is removed, and another CL is inserted before a full calendar day passes, the day count for device attribution continues uninterrupted (see table 2, Jan. 4 – Jan. 5). If instead, after device removal, a full calendar day passes with no CL in place, then the CL day count for device attribution starts over at CL Day 1 if a new line is inserted (see table 2, Jan. 6 - Jan 8).[4]

CL day count for device-attribution in this case:

1/3/18: The **port** is accessed and then de-accessed. ***This is CL day 1 for CLABSI attribution.***

1/4/18: The port is removed, but has been present for some portion of the calendar day. Because the port was accessed during the current admission, it continues to count towards central-line attribution until the day after removal from the body or the day after patient discharge. ***This is CL day 2 for CLABSI attribution.***

1/5/18: A PICC is placed (during current admission). Because a full calendar day *did not pass* without a CL in place between device removal and placement of the new device, CL day count for device attribution continues uninterrupted. The device is now an eligible CL (eligible for CLABSI event) as **this is CL day 3 for CLABSI attribution**.

1/6/18: The PICC is removed but has been present for some portion of the calendar day. **This is CL day 4 for CLABSI attribution.**

1/7/18: No CL is in place for any part of this calendar day, therefore, no device day for denominator data collection is counted. However, because the eligible CL was removed the day

before, any LCBI with this date of event would be a CLABSI (see table 2, Jan. 6 – Jan. 7). As defined, the term "CL day" should not be used synonymously with CL days for device-attribution and device (CL) days for monthly denominator data because the two determinations will not always be the same.

Question 2: What is the correct determination for the positive blood specimens collected on January 7th and how should the field for CL be completed?

a. LCBI 1; CL = No due to self-injection DOE 1/7
b. LCBI 1; CL = Y (CLABSI) DOE 1/7
c. LCBI 2; CL = No due to self-injection DOE 1/5
d. LCBI 2; CL = Y (CLABSI) DOE 1/5
e. No LCBI because patient is non-compliant and tampering with line

Explanation:

The correct answer is "b".

LCBI 1 criteria are met on January 7th (DOE) and the BSI is attributed to the eligible CL (CLABSI). The two organisms identified (*E. faecium* and *K. oxytoca*) are recognized pathogens, found on the all organism tab of the NHSN Organism List.[5] Recognized pathogens are used to meet LCBI 1 criteria. A matching common commensal (*S. hominis*), which is used to meet LCBI 2 criteria using the fever noted on January 7th, is also identified in 2 positive blood specimens, collected on separate occasions but on the same or consecutive days. If both LCBI 1 and LCBI 2 criteria are met, an LCBI 1 is reported.[6] When reporting an LCBI 1, the recognized pathogen must be listed as pathogen #1 in order to comply with business rules written into the NHSN application. The matching common commensal can then be listed as pathogen #2 or #3 (#3 in this case) and the event will save successfully. No other site-specific source of infection is identified to which the BSI can be attributed as secondary; therefore, a primary BSI is identified. The DOE for an LCBI 1 will always be the collection date of the first positive blood specimen (see table 2, Jan. 7) because no element, in addition to the positive blood specimen, is needed to fully meet LCBI 1 criteria. The device becomes an eligible CL on CL day 3 (see table 2, Jan. 5) when an accessed intravascular device has been in place for more than 2 consecutive calendar days and is still in place on the BSI DOE or the day before. The BSI DOE occurs the day after removal of an eligible CL, therefore, a CLABSI is identified and reported (see table 2, Jan. 6 - Jan. 7). The documentation provided does not meet the intent of the patient injection exclusion and therefore, cannot be used to report CL = No on the BSI event form. Acceptable documentation includes a specific statement regarding the observation or suspicion that the patient has injected into their central vascular access. The activities described in this case insinuate such behavior but the exclusion requires documentation of the observed or suspected injection within the BSI infection window period (IWP).[7]

Question 3: Which statement about counting device days for reporting January CL summary denominator data is correct?

a. Total device days reported for this patient for January CL summary denominator data: 6 device days

b. Total days reported for this patient for January CL summary denominator data: 8 device days
c. Total device days reported for this patient for January CL summary denominator data: 9 device days
d. Total device CL days reported for this patient for January CL summary denominator data: 10 device days

Explanation:

The correct answer is 'd'.

In 2017, CLs that were present on admission were counted differently for denominator counts (the total number of CL days in a location for the month) than CL placed after admission. Specifically, pre-existing CL were not to be included in central-line denominator counts until the day the line was first accessed during the inpatient admission. Because CLs were not eligible for CLABSI until they had been accessed for more than two calendar days, the purist method for surveillance would be to remove the CL days during which the patient was not eligible for a CLABSI, from the total CL day count for the location. In effect, if the patient was not eligible for a CLABSI, then the CL days should not be included in the denominator. However, NHSN has heard from many users that either they found it very difficult to determine if the CLs had been accessed, or that they may not have been excluding these non-eligible CL days from their denominator counts. Therefore, in an effort to simplify the data collection process, decrease the burden of data collection and to be consistent with the collection of device-days for other device-associated events (UTI's and VAE's), the instructions for counting device days for denominator summary data reporting has been revised, effective January 1, 2018. 2 As a result, device days for all CLs are to be counted as follows:

Device counts for denominator summary data (device days for denominator reporting): count begins on the first day a CL (of any type) is present. This could be the day of placement (during the current admission) or the day of admission, if the patient is admitted with a CL (of any type) in place.

Count only one device day for each day the patient has at least one CL in place, regardless of how many CLs or different types of CLs the patient may have in place on the same day.[8] Device days continue to be included in denominator counts until the device is removed from the body or the patient is discharged, whichever comes first. When CLs are stratified by type (temporary vs permanent CL's in Specialty Care Areas [SCA]/Oncology wards), and a patient has both a permanent and temporary CL, report only the temporary line, which has a higher risk of infection.[9]

Note: All CLs (implanted ports, permanent, temporary, PICCs, and umbilical catheters) are considered the same in terms of access, CL attribution and device day counts for summary denominator data.

Question 4: Which of these documented notes would meet criteria for use of the patient self-injection exclusion, assuming LCBI criteria are met and documentation is within the BSI infection window period (IWP)?

1. “Patient is manipulating his CL by scratching around it aggressively and interfering with line maintenance by refusing care”.

2. “Patient is very non-compliant with medical care (refusing activities of daily living, wound care, CL care, and medications except narcotics). Have witnessed patient tampering with PICC line (disconnecting tubing to go outside to smoke with friends, picking at dressing, itching aggressively around insertion site)”.

3. “At 11:00am, patient complaining of pain 10/10, 15 oxy given per MAR. Several friends came to visit requesting to go out to smoke. RN advised against it since he just took pain medicine. Patient agreed to wait half an hour but insisted on leaving at 11:20 am-patient off the floor with friends. Patient back on unit at 12:40 p.m. (gone for over an hour), slurring words with difficulty keeping eyes open and appears very sleepy. Vital signs per flow sheet. Safety cap was missing from the secondary port and the line was un-clamped. Physician informed of events”.

4. “Changed to PO antibiotics due to misuse and contamination of intravascular line”.

5. “Patient with continued polymicrobial bacteremia’s with workup negative for a focus of infection. Likely represents contamination of CL from patient using the line to inject unknown substance in light of his P.M.H of significant substance abuse. CL removed and recent blood cultures are clear”.

a. 1, 2 & 4
b. 1 & 4
c. 3 only
d. 5 only
e. all of the above

Note: The NHSN BSI protocol states: “A BSI meeting LCBI criteria that is accompanied by documentation of observed or suspected patient injection into the vascular access line, within the BSI Infection Window Period, will be considered an LCBI but not a CLABSI for NHSN reporting purposes”.[10]

Explanation:

The answer is ‘d’.

This exclusion is very specific and requires the documentation of observation or suspicion of “patient injection”. Insinuations and/or descriptions, even very detailed descriptions that do not include such a definitive statement will not be eligible for use of the exclusion.[10] Manipulating, interfering or tampering with an intravascular device (such as biting the line, picking at the dressing, itching the site, sucking on the ports, etc.) do not meet the intent of this exclusion. When adhering to best practice guidelines for CL use and maintenance the performance of “must have” prevention measures (such as scrubbing the hub, maintaining dressing integrity and timely dressing changes) should mitigate any risk associated with such activities. Surveillance protocols must be objective and applied consistently therefore, documentation must be very specific and

must include a healthcare provider's assessment that the patient was observed injecting or is suspected of injecting into their central vascular access. This information can be found in the NHSN Patient Safety Manual, Chapter 4-BSI Device-associated Module on page 4-11 and in the September 2017 edition of the NHSN Newsletter.[7,10]

References

1. MO Wright, JN Hebden, KA Bridson, GC Morrell, T Horan. "Healthcare-associated Infections Studies Project: An American Journal of Infection Control and National Healthcare Safety Network Data Quality Collaboration" American Journal of Infection Control 2010 June (38) 5: 416-418.

2. NHSN newsletter, March 2018 https://www.cdc.gov/nhsn/pdfs/newsletters/nhsn-nl-mar18-508.pdf

3. Page 4-6, Eligible CL of the NHSN Patient Safety Component Manual, accessed on 2/04/2018 at www.cdc.gov/nhsn/pdfs/pscmanual/4pscbsicurrent.pdf

4. Page 4-15, #3 of the NHSN Patient Safety Component Manual, accessed on 2/04/2018 at www.cdc.gov/nhsn/pdfs/pscmanual/4pscbsicurrent.pdf

5. NHSN Organism List, accessed on 2/04/2018 at https://www.cdc.gov/nhsn/xls/master-organism-com-commensals-lists.xlsx

6. Page 4-7, note #1 of the NHSN Patient Safety Component Manual, accessed on 2/04/2018 at www.cdc.gov/nhsn/pdfs/pscmanual/4pscbsicurrent.pdf

7. September 2017 NHSN Newsletter, accessed on 2/15/2018 at https://www.cdc.gov/nhsn/pdfs/newsletters/nhsn-nl-sep-2017.pdf

8. Page 4-21, note #1 of the NHSN Patient Safety Component Manual, accessed on 2/04/2018 at www.cdc.gov/nhsn/pdfs/pscmanual/4pscbsicurrent.pdf

9. Page 4-21, note #2 of the NHSN Patient Safety Component Manual, accessed on 2/04/2018 at www.cdc.gov/nhsn/pdfs/pscmanual/4pscbsicurrent.pdf

10. Page 4-11, of the NHSN Patient Safety Component Manual, accessed on 2/04/2018 at www.cdc.gov/nhsn/pdfs/pscmanual/4pscbsicurrent.pdf